

CLAIMS

What is claimed is:

- 1 *Sub C* 1. In a networked computer system including at least one
 2 client system, a resource server and at least one system resource accessible to
 3 the resource server wherein the at least one client system and the resource
 4 server are interconnected by a communications network and wherein a client
 5 system includes a processor for executing an application program for issuing a
 6 resource job including job instructions directing a resource to perform an
 7 operation and job data to be operated upon by the resource in performing the
 8 operation to the resource server, the resource server being responsive to a
 9 resource job for directing the job instructions and job data to a resource
 10 accessible to the resource server and the resource being responsive to the job
 11 instructions and job data for returning corresponding job result information to
 12 the resource server, a system resource usage monitoring system, comprising:
 13 in the resource server,
 14 a job processor for
 15 forwarding the job instructions and job data of a resource job to a
 16 resource accessible to the resource server, and
 17 extracting job attribute information from the resource job wherein
 18 the job attribute information includes information identifying system resources to
 19 be used in executing the resource job,
 20 a resource agent for
 21 receiving job attribute information from the job processor and job
 22 result information returned from the resource wherein the job result information
 23 identifies the results achieved by the resource in response to the resource job,
 24 and
 25 forwarding the job attribute information and the job result
 26 information to a collecting server,
 27 the collecting server including

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 28 a resource collector for receiving the job attribute information and
 29 the job result information and generating corresponding job detail information
 30 representing system resources used in executing the resource job, and
 31 a database for storing the job details.

1 2. The resource usage monitoring system of claim 1, further
 2 comprising:

3 a resource manager system communicating with the collecting
 4 server through the network for reading the job details from the database and
 5 providing the job details to a user of the resource manager system for
 6 monitoring resource usage.

1 3. The resource usage monitoring system of claim 1, wherein:
 2 the resource agent includes a dynamic discovery function for
 3 identifying a current location of a current resource collector on the network and
 4 transmitting job attribute information and job result information to the current
 5 collecting server.

1 4. The resource usage monitoring system of claim 1, wherein:
 2 the system resource manager includes a dynamic discovery
 3 function for identifying a current location of a current collecting server on the
 4 network and reading job details from the database in the current collecting
 5 server.

1 5. The resource usage monitoring system of claim 1, wherein:
 2 a client system further includes
 3 a local resource accessible to the client system, wherein the client
 4 system transmits the job instructions and job data of a resource job to the local
 5 resource, and
 6 a job capture mechanism for

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7 capturing the job instructions and job data transmitted to the local
8 resource and job result information returned by the local resource,
9 extracting the job attribute information from the captured job
10 instructions and job data, and
11 forwarding the job attribute information and job result information
12 to the resource server.

1 6. The resource usage monitoring system of claim 1, wherein:
2 a client system further includes
3 a local resource accessible to the client system, wherein the client
4 system transmits the job instructions and job data of a resource job to the local
5 resource, and
6 a job capture mechanism for
7 capturing the job instructions and job data transmitted to the local
8 resource and job result information returned by the local resource, and
9 forwarding the job instructions, job data and job result information
10 to the resource server.

1 7. In a networked computer system including at least one
2 client system, a print server and at least one printer accessible to the print
3 server wherein the at least one client system and the print server are
4 interconnected by a communications network and wherein a client system
5 includes a processor for executing an application program for issuing a print job
6 including print instructions for printing a document file and document data to be
7 printed to the print server, the print server being responsive to a print job for
8 directing the print instructions and document data to a printer accessible to the
9 print server being responsive to the print instructions and document data for
10 providing corresponding job result information to the print server, a system
11 resource usage monitoring system, comprising:
12 in the print server,
13 a job processor for

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14 forwarding the print instructions and document data of a print job
15 to a printer accessible to the print server, and
16 extracting job attribute information from the print job wherein the
17 job attribute information includes information identifying system resources to be
18 used in executing the print job,
19 a resource agent for
20 receiving job attribute information from the job processor and job
21 result information returned from the printer wherein the job result information
22 identifies the results achieved by the printer in response to the print job, and
23 forwarding the job attribute information and the job result
24 information to a resource collecting server,
25 the resource collecting server including
26 a resource collector for receiving the job attribute information and
27 the job result information and generating corresponding job detail information
28 representing system resources used in executing the print job, and
29 a database for storing the job details.

1 8. The resource usage monitoring system of claim 7, further
2 comprising:
3 a resource manager system communicating with the resource
4 collecting server through the network for reading the job details from the
5 database and providing the job details to a user of the resource manager system
6 for monitoring resource usage.

1 9. The resource usage monitoring system of claim 7, wherein:
2 the resource agent includes a dynamic discovery function for
3 identifying a current location of a current resource collecting server on the
4 network, for transmitting job attribute information and job result information to
5 the current resource collecting server.

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6 Sub C¹ 7 10. The resource usage monitoring system of claim 7, wherein:
7 the system resource manager includes a dynamic discovery
8 function for identifying a current location of a current resource collecting server
9 on the network, for reading job details from the database in the current resource
10 collecting server.

1 11. The resource usage monitoring system of claim 7, wherein:
2 a client system further includes
3 a local printer accessible to the client system, wherein the client
4 system transmits the print instructions and document data of a print job to the
5 local printer, and
6 a job capture mechanism for
7 capturing the print instructions and document data transmitted to
8 the local printer and job result information returned by the local printer,
9 extracting the job attribute information from the captured print
10 instructions and document data, and
11 forwarding the job attribute information and job result information
12 to the print server.

1 12. The resource usage monitoring system of claim 7, wherein:
2 a client system further includes
3 a local printer accessible to the client system, wherein the client
4 system transmits the print instructions and document data of a print job to the
5 local printer, and
6 a job capture mechanism for
7 capturing the print instructions and document data transmitted to
8 the local printer and job result information returned by the local printer, and
9 forwarding the print instructions, document data and job result
10 information to the print server.

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1 13. In a networked computer system including at least one
2 client system, a resource server and at least one system resource accessible to
3 the resource server wherein the at least one client system and the resource
4 server are interconnected by a communications network and wherein a client
5 system includes a processor for executing an application program for issuing a
6 resource job including job instructions directing a resource to perform an
7 operation and job data to be operated upon by the resource in performing the
8 operation to the resource server, the resource server being responsive to a
9 resource job for directing the job instructions and job data to a resource
10 accessible to the resource server and the resource being responsive to the job
11 instructions and job data for returning corresponding job result information to
12 the resource server, a method for monitoring usage of system resources,
13 comprising the steps of:
14 forwarding a resource job to the resource server,
15 forwarding the job instructions and the job data of a resource job
16 from the resource server to a resource accessible to the resource server,
17 extracting job attribute information from the resource job wherein
18 the job attribute information includes information identifying system resources to
19 be used in executing the resource job,
20 returning job result information from the resource receiving the
21 resource job to the resource server wherein the job result information identifies
22 the results achieved by the resource in response to the resource job,
23 forwarding the job attribute information and job result information
24 returned from the resource to a collecting server,
25 generating corresponding job detail information representing
26 system resources used in executing the resource job, and
27 storing the job details in a database.

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1 14. The method for monitoring usage of system resources of
2 claim 13, further comprising the steps of:
3 communicating with the collecting server through the network for
4 reading the job details from the database and reading the job details to a user of
5 a resource manager system for use in monitoring resource usage.

1 15. The method for monitoring usage of system resources of
2 claim 13, further comprising the steps of:
3 executing a dynamic discovery function to identify a current
4 location of a current collecting server on the network and transmitting job
5 attribute information and job result information to the current collecting server.

1 16. The method for monitoring usage of system resources of
2 claim 13, further comprising the steps of:
3 executing a dynamic discovery operation to identify a current
4 location of a current collecting server on the network and reading job details
5 from the database in the current collecting server.

1 17. The method for monitoring usage of system resources of
2 claim 13, further comprising the steps of:
3 forwarding the job instructions and job data of a resource job from
4 a client system to a local resource accessible to the client system,
5 capturing the job instructions and job data transmitted to the local
6 resource and job result information returned by the local resource,
7 extracting the job attribute information from the captured job
8 instructions and job data, and
9 forwarding the job attribute information and job result information
10 to the resource server.

1 19. The method for monitoring usage of system resources of
2 claim 13 wherein the resource is a printer, the resource job is a print job and the
3 job instructions and job data of the resource job are printing instructions and
4 document data.

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